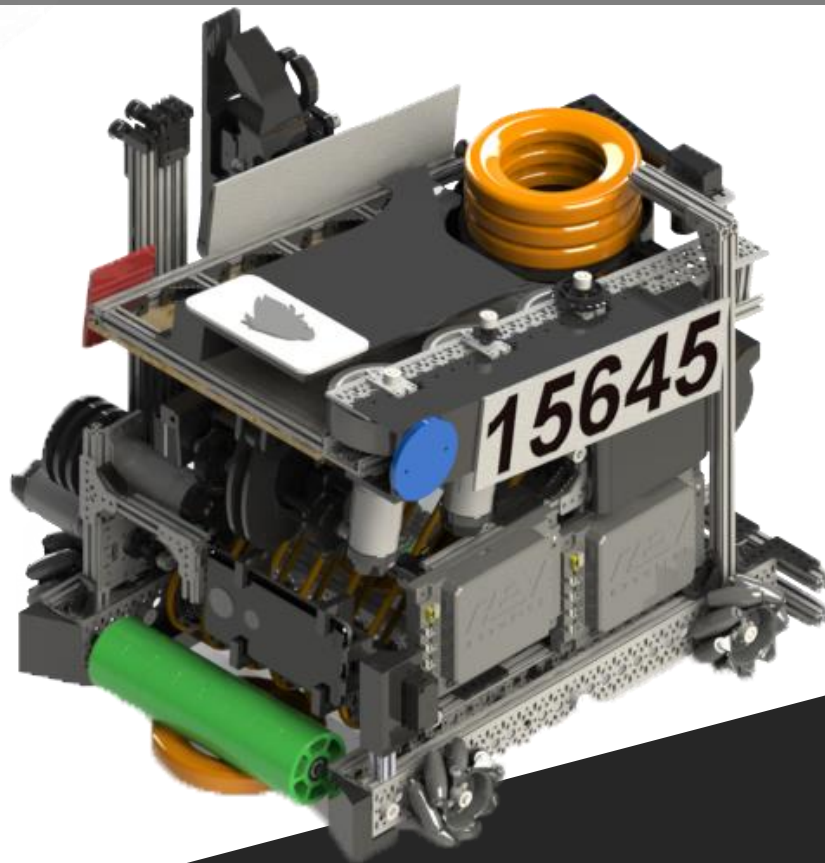


TEAM 15645: WINT

WinT 15645 Newest FTC Robot
2021 Season



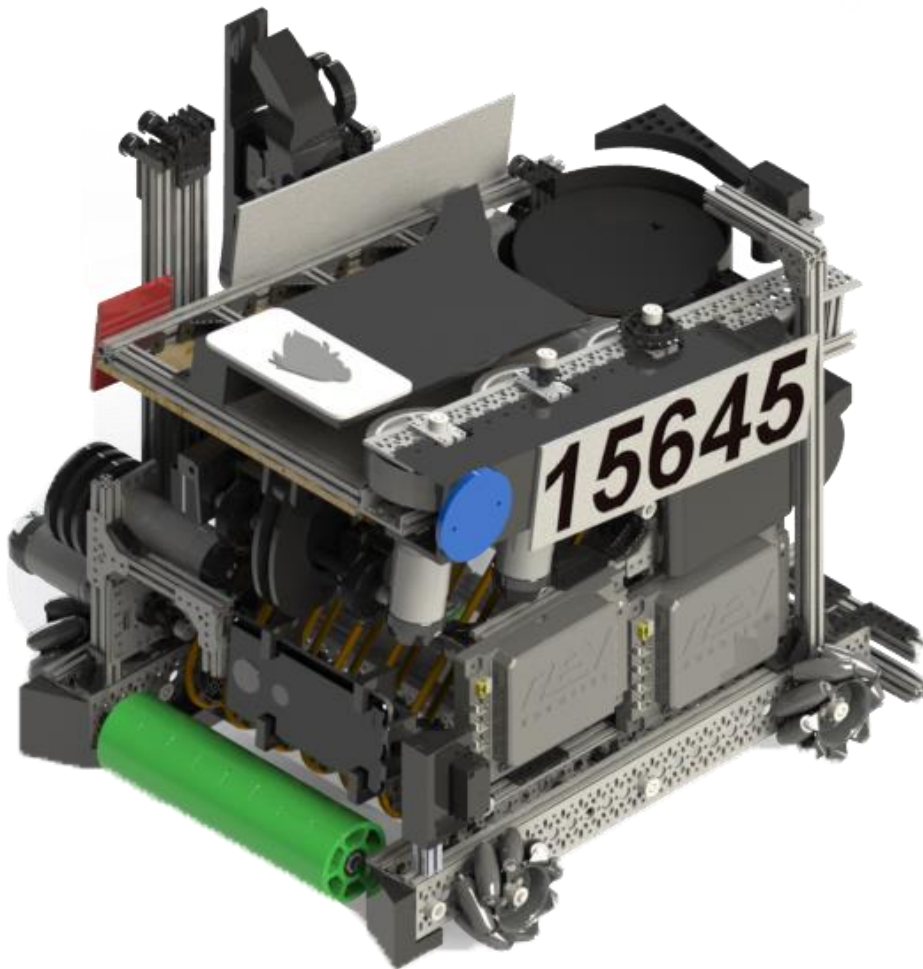
WINT III

STARTING CONFIGURATION

Arm starts inside the robot.

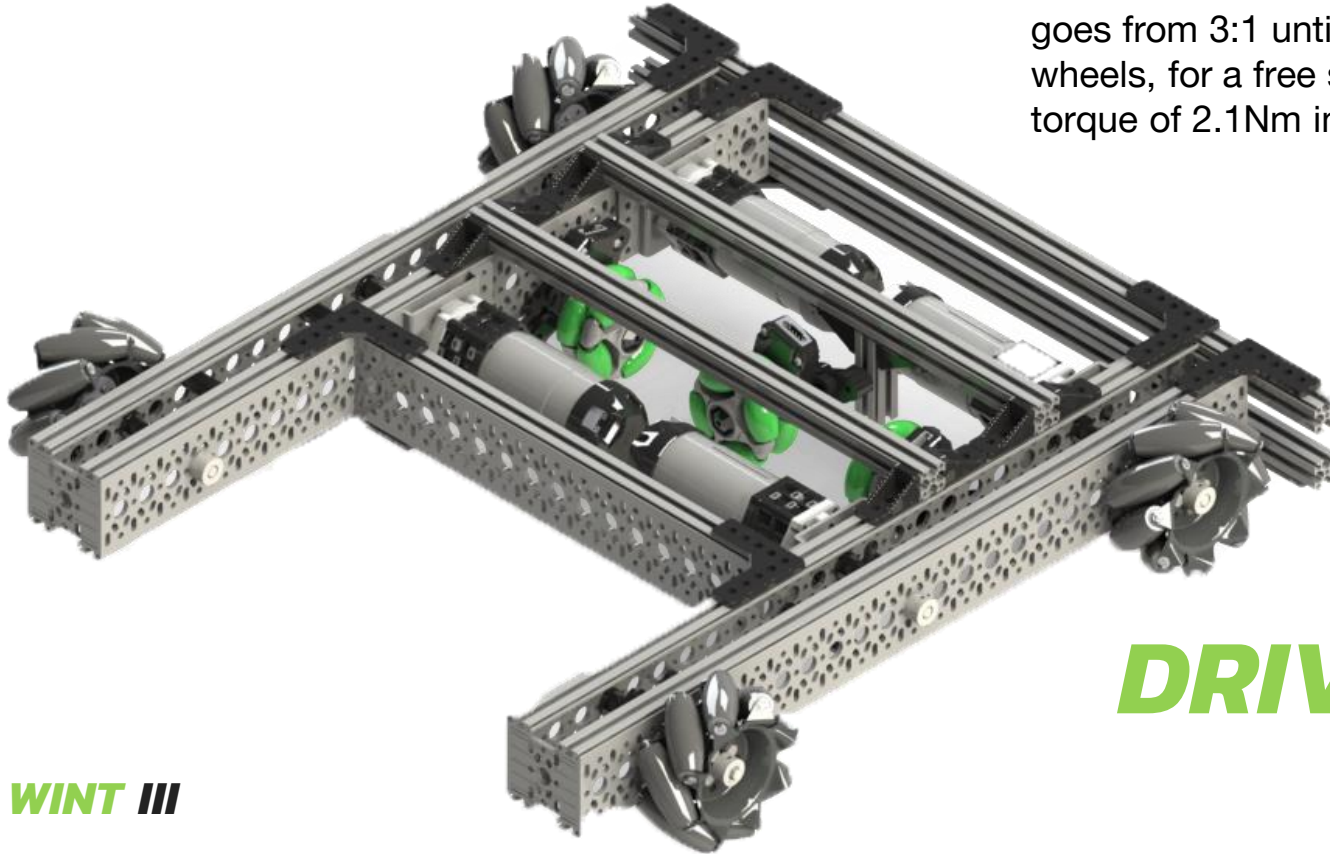
Phone starts in a perpendicular position respect to the floor.

Servo 2014 Kick starts inside the robot.



REV through bore encoders give real time feedback for x and y position in the field by implementing odometry.

4x HD motors with variable gearing that goes from 3:1 until 60:1 to 75mm Mecanum wheels, for a free speed of 1.17m/s with a torque of 2.1Nm in 20:1 gear configuration.



DRIVETRAIN

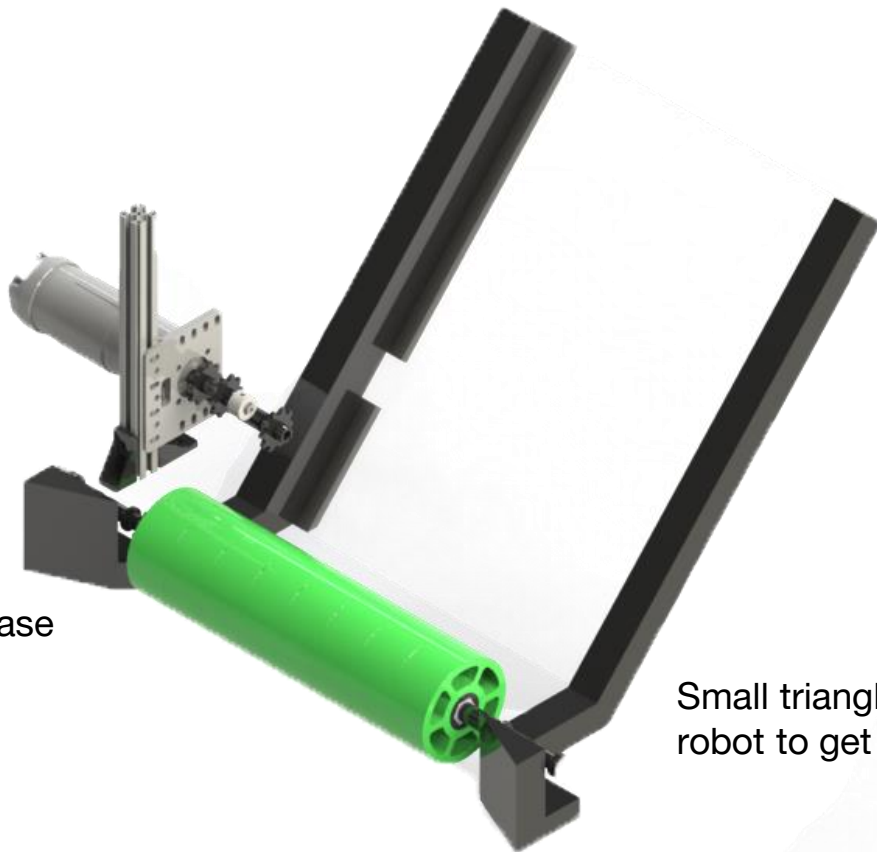
WINT III

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INTAKE

Rollers: HD motor with a 20:1 gear reduction, driving a series of 2.25" compliant wheels.

Phone can be used as vision to align for rings recollection.



Full-width robot intake to increase the probability of getting game pieces.

Small triangles extrusions help robot to get rings easier.

INDEXER



Uses same HD motor as intake geared down 20:1 to move rings inside the robot.

A container at the back of the robot stores the rings until driver has collected 3.

A small elevator take rings up once driver has 3 rings already collected.

A servo inside elevator goes up to avoid rings to fall during elevation.

A servo kicks the rings into the shooter once they are up.

Adjustable pressure in belt.

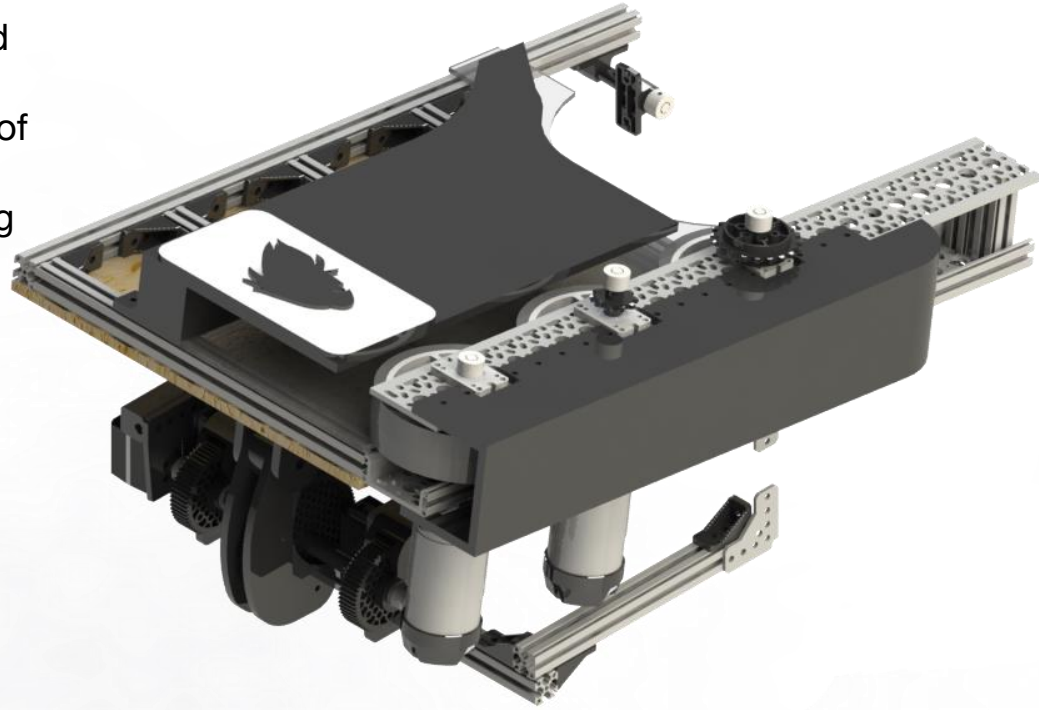
Uses 2 HD motors geared 1:1 for second and third wheel and 1:2 for first wheel driving 3 HiGrip Rev wheels, wheels spin up to 6000rpm with a torque of 0.105 Nm and 0.31Nm respectively, wheels are only in one side to allow ring to spin while shooting like a real frisbee shoot.

We use 3 wheels and two motors for faster speed recuperation.

Shooter adjustable pressure.

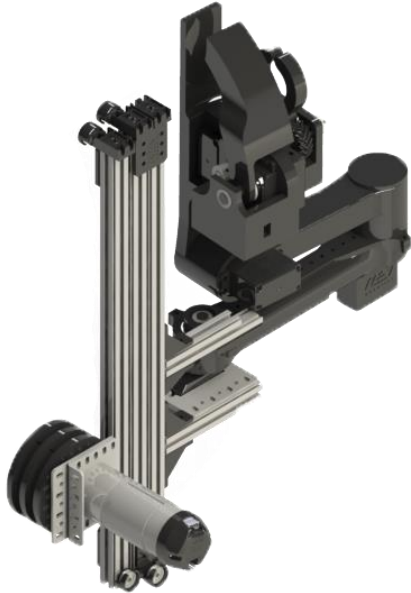
Shooter adjustable angle with 13 degrees of freedom.

Angle is driven by two continuous rotation servos geared 4:1 that get feedback from an external REV potentiometer



SHOOTER

Wooble Goal Mechanism



All servos have bearings to support frequent movements

Elevator that can rise up to 70cm driven by a HD motor geared 40:1 to get a full extension in less than 0.5 seconds.

3D printed arm composed of 5 servos. It has 3 points of motion and two claws, one to lift wooble goal and another to be able to put rings inside wooble goal or in low goal if shooting mechanism fails, it also allows the robot to rotate the wooble goal in case it has falls.

WinT

- Same intake type.
- Slower Conveyor Time.
- More Shooting areas.
- Constant shoots.
- Heavier.
- Adjustable torque for conveyor.
- Simply WinT.



WINT III

Gluten Free

- Same intake type.
- Faster Conveyor Time.
- Less Shooting areas.
- No constant shoots.
- Lighter.
- Conveyor get stuck with more than one ring.
- Best FTC team in ALL THE WORLD.



WINT
15645



Paolo Reyes